

Remarks

By way of the foregoing amendments, claim 1 has been amended to include the limitation of claim 2 that previously depended from claim 1, claims 3 and 8-10 have been rewritten in independent form, and claim 12 has been amended to depend from claim 1. The amendments to claims 1, 3 and 8-10 do not introduce any new issue not previously considered by the Examiner, and the entry of the amendments to these claims is requested. As for claim 12, such claim would be allowable if claim 1 is allowed for the reasons discussed below. These amendments were not previously made because the claims as last presented were (and still are) considered allowable. However, in the interest of expediting the prosecution of this application and to bring it to a close short of an appeal, the amendments are being presented for entry and favorable consideration by the Examiner.

Drawings

As required, a drawing is being submitted herewith. The drawing diagrammatically illustrates an exemplary flooring according to the invention. The specification has been amended to include an appropriate reference to the drawing.

Independent Claim 1

Amended claim 1 recites a sound-insulating floor covering component comprising, *inter alia*, a layer of thermoplastic material firmly bonded to the bottom surface of a rigid laminate or parquet panel, wherein the layer of thermoplastic material is 0.1 to 5 mm thick. As observed by the Examiner, Padmanabhan '765 does not disclose or suggest a thickness for the layer 17. In view of this, the Examiner contends that the claimed range would have been a mere change in dimension or size of an element which is generally recognized as being within the level of ordinary skill in the art.

While it might be true that the selection of a thickness for the FRP layer 17 might be within the level of ordinary skill in the art, this would be true only in the context in which the FRP layer 17 is employed. In the composite wood flooring of Padmanabhan, the primary functions of the layer 17 are to reinforce and moisture-proof the wood flooring (see Padmanabhan '765 col. 10/lines 31-35, and Padmanabhan '766 col. 7/lines 9-13). Accordingly, the skilled person would select a thickness consistent with both of these stated functions. Moreover, the skilled person would be aware of the

construction of the layer 17. While this construction is generally described in Padmanabhan '765 at col. 6/line 63 to col. 7, line 12, it is described in greater detail in Padmanabhan '766. It can be seen Fig. 9 of Padmanabhan '766 that the FRP layer includes multiple layers including continuous or chopped strand mats 30, fabrics 31, and a suitable polymeric resin 32 such as epoxy or phenolic that can provide good adhesion to wood. As further described at col. 7/lines 50-54,

A plurality of fabrics 31 are alternated with a plurality of mats 30 in the layup, and a mat 30 is also used adjacent to the wood surface. A layer of resin 32 is applied between each of the alternated layers of mats 30 and fabrics 31 which soaks into these layers.

It is respectfully submitted that any thickness for the FRP layer 17 contemplated by the skilled person would fall outside the range set forth in claim 1. In this regard, it is noted that the purpose of the layer of thermoplastic material set forth in claim 1 is to provide sound-proofing, which is not a stated function of the FRP layer 17 of Padmanabhan '765. As above noted, a stated function of the multi-layer construction of the FRP layer 17 of Padmanabhan '765 is to improve the mechanical and fatigue properties of the floor, which presumably would necessitate a layer thickness greater than 5mm thick. Withdrawal of the rejection of claim 2 and the claims that depend therefrom is respectfully requested.

Independent Claim 3

Claim 3 recites a sound-insulating floor covering comprising, *inter alia*, a layer of thermoplastic material firmly bonded to the bottom surface of a rigid laminate or parquet panel, in which the layer of thermoplastic material displays a marked physical relaxation behavior at ambient temperature. As observed by the Examiner, Padmanabhan '765 does not disclose or suggest a thermoplastic material that displays a marked physical relaxation behavior at ambient temperature. The Examiner opines, however, that it would have been obvious to form the layer 17 from thermoelastic material such as vinyl acetate in view of Eaton et al.

In the statement of the rejection, the Examiner offers no explanation as to why the skilled person would have been motivated or somehow prompted to make the substitution advanced by the Examiner. The most likely reason is that there is no explanation, given that Eaton et al. relates to closures for undergarments and diapers and has nothing at all to do with flooring and much less flooring of the type described by

Padmanabhan '765. Consequently, the Examiner has not stated a *prima facie* case of obviousness of the subject matter of claim 3.

Independent Claims 8 and 9

Claim 8 recites a sound-insulating floor covering component comprising, *inter alia*, a layer of thermoplastic material firmly bonded to the bottom surface of a rigid laminate or parquet panel, wherein the thermoplastic material, in a free-flowing state, was spread or rolled onto the bottom surface of the floor panel. Claim 9 recites a sound-insulating floor covering component comprising, *inter alia*, a layer of thermoplastic material firmly bonded to the bottom surface of a rigid laminate or parquet panel, wherein the thermoplastic material is heated and applied in a free-flowing state onto the bottom surface of the floor panel by spreading or roller application.

In regard to the subject matter of claims 8 and 9, the Examiner refers to col. 6, lines 11-26 of Padmanabhan '765 for a disclosure of a thermoplastic rolled onto the bottom surface of the wood laminate. A problem with this is that the rolled thermoplastic is not the FRP layer 17 but instead an adhesive used to bond the FRP layer 17 to the wood laminate 16.

In order to overcome the problems of squeeze-out of the resin and warping of the boards due to heating of the FRP for curing the resin, it is better to adhesively bond a prefabricated FRP sheet to the wood member with minimal application of heat to the FRP and wood. A suitable prefabricated FRP sheet can be bonded to laminated wood using thermosetting or thermoplastic adhesives. Thermosetting adhesives include epoxy, polyurethane, phenol-resorcinol formaldehyde, urea-melamine formaldehyde, etc. Thermoplastic adhesives include hotmelts such as ethylene vinyl acetate polymers (EVA), polyamide, etc. Experiments have shown that thermosetting liquid adhesives can be used to fabricate composite wood floor. However, squeeze-out of the adhesive through the hook joints of the wood member continues to be a problem when heat and pressure are applied. Further, application of excessive amount of heat through the FRP to quickly cure the adhesive leads to warping of the board as mentioned before. Even though the use of thermoplastic hotmelt adhesives such as EVA in bulk form or films eliminate squeeze-out, they do not lead to sufficient bond strength to resist the pop-out of the lumber strips at the hook joints. Thermoplastic

hotmelt adhesives with relatively high strength can provide the required performance. After several experiments and extensive testing, reactive hotmelt adhesive has been determined to be the best choice to bond prefabricated FRP to wood members to manufacture composite wood boards. This method offers high speed of production with minimal application of heat and good bonding of the FRP to wood members to resist the opening of the hook joints under load along with little or no squeeze-out of the adhesive during production.

Reactive hotmelt adhesives behave like a typical non-reactive hotmelt adhesive during processing or bonding, but subsequently undergo chemical reactions with moisture to transform into a cross-linked thermosetting adhesive. By means of cross-linking, the molecular weight of the adhesive increases thus providing higher bond strength and hygrothermal resistance. Reactive hotmelt adhesives are solvent free solids at room temperature. They are melted by heating and then applied on the bondable surface of the substrates by means a roller coater. Typically, only one substrate needs to be coated in order to bond to another uncoated substrate. However, both substrates may be coated, if required. After coating one or both substrates with the reactive hotmelt adhesive, the substrates are joined and pressed together by a platen press or by means of rollers. The joined and pressed parts are allowed to cure for 1 to 7 days before use.

Consequently, the FRP layer 17 is not rolled or spread onto the wood member, but instead is bonded to the wood member by an adhesive. Withdrawal of the rejection of claim 8 is respectfully requested.

Independent Claim 10

Claim 10 recites a sound-insulating floor covering component comprising, *inter alia*, a layer of thermoplastic material firmly bonded to the bottom surface of a rigid laminate or parquet panel, wherein the thermoplastic material is selected from the group consisting of polyvinyl formals, polyvinyl butyrals, polyvinyl ethers, polyisobutenes, copolymers including terpolymers of acrylonitrile, butadiene and styrene (ABS), copolymers of vinyl chloride and 2-ethylhexyl acrylate, copolymers of vinyl acetate and vinyl laurate, or blends of these polymers, and wherein the thermoplastic material includes a plasticiser. In connection with the rejection of claim

10, the Examiner looks to Eaton et al. for the disclosure of a thermoplastic including a plasticizer.

In the statement of the rejection, the Examiner offers no explanation as to why the skilled person would have been motivated or somehow prompted to modify the flooring of Padmanabhan '765 in a manner that would give rise to the subject matter of claim 10. The most likely reason is that there is no explanation, given that Eaton et al. relates to closures for undergarments and diapers and has nothing at all to do with flooring and much less flooring of the type described by Padmanabhan '765. Consequently, the Examiner has not stated a *prima facie* case of obviousness of the subject matter of claim 10.

Conclusion

For at least the foregoing reasons, the rejections advanced by the Examiner should be withdrawn and this application passed to issue.

Respectfully submitted,

RENNER, OTTO, BOISSELLE & SKLAR, LLP

By _____

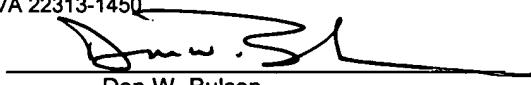

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